

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

U.S. Patent Application Serial No. 10/073,926
Response dated December 29, 2003
Reply to OA of **October 1, 2003**

REMARKS

Claims 6 and 8-15 are pending in this application. An amendment has been proposed herein amending claim 6 and canceling claim 14. No new matter has been added by this amendment. Upon entry of this amendment, claims 6, 8-13 and 15 will be pending.

Claims 6 and 8-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hoene et al. (U.S. Pat. No. 4,172,102).

Reconsideration of the rejection is respectfully requested in view of the proposed amendment to claim 6. In the proposed amendment to claim 6, claim 6 is amended to incorporate the feature of Claim 14 of the weight ratio of a principal chain (A1) to a side chain (A2) of a graft copolymer (A). Claim 14 is also correspondingly canceled. The amendment to claim 6 also clarifies that the addition polymerization polymer is for low profile.

In claim 6 as amended, the weight ratio of principal chain A1 to side chain (A2) is in the range of 70/30 to 30/70.

The constitution of the present invention is compared with that of Hoene in the following table.

Present Invention (Claim 6)	Hoene (Claim 1)
(B) A radical copolymerizable unsaturated resin composition comprising	(a) An unsaturated polyester molding composition which is curable in the presence of a polymerization initiator and comprises a mixture of
a compatibilizing agent,	-
(D) <u>an addition polymerized polymer for low profile,</u>	(d) <u>shrinkage-reducing additives which may be added optionally (column 3, lines 50-51)</u>
a radical copolymerizable unsaturated resin, and	(a) one or more ethylenically unsaturated copolymerizable polyesters,
(C) a polymerizable unsaturated monomer,	(b) one or more ethylenically unsaturated copolymerizable monomeric compounds, the proportion by weight of a:b being 80:20 to 30:70, and
<p>(A) wherein the compatibilizing agent is a graft copolymer (A) which contains styrene repeat units as a principal component, said graft copolymer (A) having:</p> <p>a principal chain (A1) that is a copolymer comprising (meth)acrylate repeat units and the styrene repeat units; and</p> <p>a side chain (A2) selected from a ring-opening polymerized polyether side chain consisting of a polyoxyalkylene ether, a polyester side chain, and a polycarbonate side chain,</p> <p>the side chain (A2) being bonded to the principal chain (A1),</p> <p><u>the weight ratio (A1/A2) of a principal chain (A1) to a side chain (A2) is within a range of 70/30-30/70</u></p> <p>the amount of the graft copolymer (A) being within a range of 0.1-10 parts by weight based on the total of the amount of the radical copolymerizable unsaturated resin and the amount of the addition polymerized polymer as 100 parts by weight.</p>	(c) a polyalkylene ether copolymer in an amount of 0.1 to 25% by weight, based on the total weight of components a and b, wherein the polyalkylene ether copolymer has a molecular weight of between about 1,000 and 1,000,000 and is a graft polymer mixture or copolymer mixture, or a mixture of these, which graft polymer mixture or copolymer mixture is obtained by free radical polymerization of ethylenically unsaturated polyalkylene ethers and one or more ethylenically unsaturated monomers in a proportion by weight of ethers: monomers of 0.5:99.5 to 30:70.

In particular, Applicants note that Hoene et al. (col. 7, lines 33-38) indicates that: "The amount of the ethylenically unsaturated monomers used in the free radical graft polymerization and/or copolymerization is general from 99.5 to 70% by weight..., based on the total weight of the mixture of monomers and ethylenically unsaturated polyalkylene ethers." However, claim 6 as amended requires the ratio of side chain to principal to be 30/70 to 70/30, that is, the amount of side chain is 30% to 70% of the total. That is, Hoene et al. is different in composition from claim 6 as amended.

The effect of the side chain being bulky is that the oxyethylene units are closely coordinated with said radical copolymerizable unsaturated resin due to intermolecular forces, and function as an anchor component, which is a very important component for stable dispersion (page 10, lines 21-25 of the specification).

The technical feature of Hoene is that the unsaturated polyester composition may or may not contain shrinkage-reducing additives by modifying the polyalkylene either copolymer (graft polymer mixture or copolymer mixture, or a mixture of these) as a component (c) of Hoene.

The purpose of Hoene is to provide a "low-shrink composition" (see title), and the purpose of "low-shrink" of the unsaturated polyester molding composition is achieved by (a) + (b) + (c) of Hoene. Component (d) in Hoene is an optional component.

Applicants note that there is no clear component in Hoene corresponding to an addition polymerized polymer (D) for low profile, of the present invention. If component (A) of the present invention is taken as corresponding to component (c) of Hoene, there is no corresponding component

U.S. Patent Application Serial No. **10/073,926**
Response dated December 29, 2003
Reply to OA of **October 1, 2003**

to component (D) of the present invention. The closest corresponding component in Hoene, as listed in the table above, is component (d). As noted above, however, there is no need to add the component (d) shrinkage-reducing additives in Hoene.

Applicants note that the Examiner considered that addition polymerized polymer (D) in the present invention should be compared with one component of (c) of Hoene; however, component (D) should not be compared with the (c) component.

The amount of (A) component in the present invention is also different from that of Hoene's shrinkage reducing additives (d).

The component (d) of Hoene is an optional component exemplified by general additives (thickeners, inhibitors, fillers, reinforcing agents, inert solvents, polymerization accelerators and shrinkage-reducing additives (thermoplastic polymers)). These additives in Hoene are not essential components unlike the essential component of (D) in the present invention. This disclosure merely shows that the (d) component may be added as a general shrinkage-reducing additive independently from the (c) component.

The amount of the (c) component in Hoene is 0.1 to 25% and preferably 10 to 20% by weight and 40 parts was used in Example 5.

In the present invention, component (A) is a compatibilizing agent and the amount is 0.1 to 10 parts by weight and more preferably 0.5 to 3 parts by weight (page 15, lines 20-25 in the specification).

U.S. Patent Application Serial No. 10/073,926
Response dated December 29, 2003
Reply to OA of **October 1, 2003**

In conclusion, the purpose of the addition of (A) component of the present invention and (c) component of Hoene is different. The amounts in the composition are different because of the different purposes.

One of the technical features of the present invention that is an unsaturated resin composition includes a compatibilizing agent and the compatibilizing agent (thermoplastic polymers or addition polymer) and unsaturated resin dissolved in unsaturated monomer. The shrinkage-reducing additives in Hoene are an optional component.

Applicants therefore submit that claims 6, 8-13 and 15, as amended, are novel and non-obvious over Hoene et al.

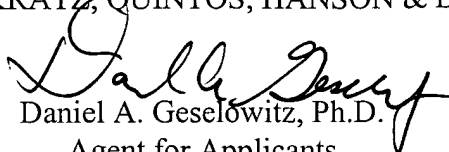
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

U.S. Patent Application Serial No. **10/073,926**
Response dated December 29, 2003
Reply to OA of **October 1, 2003**

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP


Daniel A. Geselowitz, Ph.D.
Agent for Applicants
Reg. No. 42,573

DAG/plb
Atty. Docket No. **001514A**
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



23850

PATENT TRADEMARK OFFICE

Q:\FLOATERS\ldgeselowitz\001514A 12-29-03 Amend